PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
WOB02 IDM IL-4		

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/EP 03/03922	15.04.2003	19.04.2002

International Patent Classification (IPC) or both national classification and IPC
C12N5/06

Applicant
I.D.M. IMMUNO-DESIGNED MOLECULES et al.

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

   ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
17.07.2003	10.09.2004

Name and mailing address of the international preliminary examining authority:

European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized Officer

Novak-Giese, S

Telephone No. +49 89 2399-8930

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP 03/03922

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

1-28 as originally filed

Claims, Numbers

1-35 as originally filed

Drawings, Sheets

1/9-9/9 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).

   ☐ the language of publication of the international application (under Rule 48.3(b)).

   ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   ☐ contained in the international application in written form.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority in written form.

   ☐ furnished subsequently to this Authority in computer readable form.

   ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

   ☐ the description, pages:

   ☐ the claims, Nos.:

   ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	
	No:	Claims	1-35
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-35
Industrial applicability (IA)	Yes:	Claims	1-35
	No:	Claims	

2. Citations and explanations

   see separate sheet

D1: SANTINI M ET AL: 'Type I Interferon as a Powerful Adjuvant for Monocyte-Derived Dendritic Cell Development and Activity In Vitro and in Hu-PBL-SCID Mice' JOURNAL OF EXPERIMENTAL MEDICINE, TOKYO, JP, vol. 191, no. 10, 15 May 2000 (2000-05-15), pages 1777-1788, XP002182907 ISSN: 0022-1007

D2: WO 98 05795 A (BLOOD RES CENTER) 12 February 1998 (1998-02-12)

D3: PAQUETTE R L ET AL: 'INTERFERON-ALPHA AND GRANULOCYTE-MACROPHAGE COLONY-STIMULATING FACTOR DIFFERENTIATE PERIPHERAL BLOOD MONOCYTES INTO POTENT ANTIGEN-PRESENTING CELLS' JOURNAL OF LEUKOCYTE BIOLOGY, FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL, US, vol. 64, no. 3, September 1998 (1998-09), pages 358-367, XP008014325 ISSN: 0741-5400

D4: L-J ZHOU ET AL: 'CD14+ BLOOD MONOCYTES CAN DIFFERENTIATE INTO FUNCTIONALLY MATURE CD83+ DENDRITIC CELLS' PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA, NATIONAL ACADEMY OF SCIENCE. WASHINGTON, US, no. 93, 1 March 1996 (1996-03-01), pages 2588-2592, XP002075945 ISSN: 0027-8424 cited in the application

ad V.

1. Novelty (Article 33(2) PCT

1.1. The present application relates to a subset of dendritic cells wich express surface markers such as CD2, CD83, and CD14, moreover MHC class I and class II molecules; these cells are capable to secrete TNF-alpha, and to stimulate allogenic, respectively autologous T lymphocytes.
Also the claims encompass the use of such cells, and methods to prepare them.

1.2. D1 describes a method of enrichment of dendritic cells from blood, their use in therapeutical applications and kits. Among the DC's purified some of them display the phenotype of CD2, CD14, and CD83.

D2 is concerned with the identification of surface markers on blood monocytes which differentiate into mature CD83 dendritic cells. On page 2589, right column,

a small population of cells is mentioned which expresses CD2 and CD83.

D3 demonstrates that monocytes differentiate into DC's when they are grown in a defined medium. The immature dendritic cell phenotype is characterized by expression of CD14, CD83, MHC class I, and class II. These cells are capable to induce strong allogenic T cell proliferation.

D4 describes CD2 cells as precursors of DC's. These cells are strong inducers of the allogenic MLR, and do also express CD14.

1.3. It follows from the teaching of D1 to D4 that precursor cells displaying the same or similar phenotype were known in the art. Also the use of said cells is described.

It appears therefore that the cells of the application, the method of their preparation, and uses thereof can not be distinguished from those of the prior art.

1.4. Thus, novelty can not be acknowledged for the subject-matter of claims 1-35.

2. Inventive Step (Article 33(3) PCT)

2.1. Applicants are asked to point out which advantageous or surprising effects their cells might confer which can not be deduced from the cells of the prior art.

So far it appears that the general concept of providing mononuclear precursor cells was well known.
Applicants should also consider that mere introduction of further parameters does not make known cells novel and/or inventive per se. Moreover, the introduction of such parameters makes it impossible for the examining Division to assess the differences to the cells of D1-D4.

2.2. Also, essential technical features should be common to all embodiments of the invention. However, claim 1 and claim 2 relate either to cells capable to stimulate allogenic T lymphocytes, or capable to stimulate autologous T lymphocytes.

Therefore only other features that are common to both types of cells can be considered as special technical feature. In case these features turn out to be

relevant, non-unity objections will latest be raised at the European phase of the examination.

2.3. Concerning unity of the invention (see also item 2.2.) applicants should also notice that the subject-matter of claims 9-16 appears to represent a different invention. The special technical feature(s) of said claims appears to reside in the respective ligands, and their use.